# STIC Search Report
## Biotech-Chem Library

STIC Database Tracking Number: 148958

| | |
|---|---|
| **TO: Rei-Tsang Shiao**<br>**Location: 5a10 / 5c18**<br>**Monday, April 04, 2005**<br>**Art Unit: 1626**<br>**Phone: 571-272-0707**<br>**Serial Number: 10 / 652634** | **From: Jan Delaval**<br>**Location: Biotech-Chem Library**<br>**Remsen 1a51**<br>**Phone: 571-272-22504**<br><br>**jan.delaval@uspto.gov** |

## Search Notes

```
=> fil reg
FILE 'REGISTRY' ENTERED AT 08:45:54 ON 04 APR 2005
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Property values tagged with IC are from the ZIC/VINITI data file
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STRUCTURE FILE UPDATES:    1 APR 2005  HIGHEST RN 847818-85-3
DICTIONARY FILE UPDATES:   1 APR 2005  HIGHEST RN 847818-85-3

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

**********************************************************************
*                                                                    *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,    *
* effective March 20, 2005.  A new display format, IDERL, is now     *
* available and contains the CA role and document type information. *
*                                                                    *
**********************************************************************

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> d sta que l26
L9                STR
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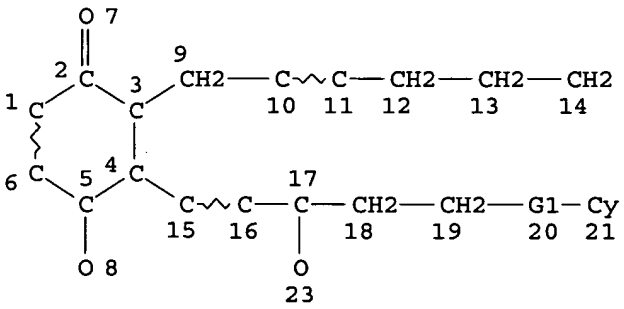


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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC   4
NUMBER OF NODES IS  22

STEREO ATTRIBUTES: NONE
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L18               STR
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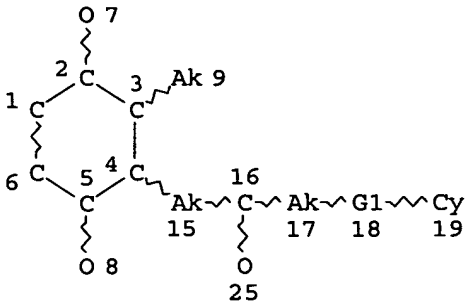


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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC 4
NUMBER OF NODES IS 15

STEREO ATTRIBUTES: NONE

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L23           9 SEA FILE=REGISTRY SUB=L20 SSS FUL L9
L24          25 SEA FILE=REGISTRY ABB=ON  PLU=ON  L20 NOT L23
L25           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L24 AND (C25H30O5S OR
                 C23H30O5)
L26          11 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L23 OR L25)


=> d his

     (FILE 'HOME' ENTERED AT 08:30:44 ON 04 APR 2005)
                SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 08:31:18 ON 04 APR 2005
L1            1 S US20050049227/PN OR (US2003-652634# OR WO2004-US26607)/AP,PRN
                E ALLERGAN/PA,CS
L2          975 S E3-E82
                E OLD D/AU
L3           22 S E3,E5,E7,E8
                E BURK R/AU
L4           92 S E3,E10,E17,E22,E23
                E DINH T/AU
L5            7 S E3,E5
                E DINH THANG/AU
L6            7 S E3,E4
L7            1 S L1 AND L2-L6
                SEL RN

     FILE 'REGISTRY' ENTERED AT 08:33:24 ON 04 APR 2005
L8           39 S E1-E39
L9              STR
L10           0 S L9
L11             STR L9
L12           0 S L11
L13          31 S L8 AND C6/ES
L14             STR L11
L15           0 S L14
L16     1028259 S (46.150.1 OR 46.150.2)/RID
L17           0 S L14 SAM SUB=L16
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L18             STR L14
L19           0 S L18 SAM SUB=L16
L20          34 S L18 FUL SUB=L16
               SAV L20 SHIAO652/A
L21          13 S L8 AND L20
L22          21 S L20 NOT L21
L23           9 S L9 FUL SUB=L20
               SAV L23 SHIAO652A/A
L24          25 S L20 NOT L23
L25           2 S L24 AND (C25H30O5S OR C23H30O5)
L26          11 S L23,L25
L27           2 S L21 NOT L26
               SAV L26 SHIAO652B/A

     FILE 'HCAOLD' ENTERED AT 08:45:24 ON 04 APR 2005
L28           0 S L26

     FILE 'HCAPLUS' ENTERED AT 08:45:27 ON 04 APR 2005
L29           1 S L26
L30           1 S L29 AND L1-L7

     FILE 'USPATFULL, USPAT2' ENTERED AT 08:45:34 ON 04 APR 2005
L31           1 S L26

     FILE 'REGISTRY' ENTERED AT 08:45:54 ON 04 APR 2005

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FILE 'HCAPLUS' ENTERED AT 08:46:03 ON 04 APR 2005
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FILE COVERS 1907 - 4 Apr 2005  VOL 142 ISS 15
FILE LAST UPDATED: 3 Apr 2005  (20050403/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


=> d l30 all hitstr

L30  ANSWER 1 OF 1  HCAPLUS  COPYRIGHT 2005 ACS on STN
AN   2005:185378  HCAPLUS
DN   142:261329
ED   Entered STN:  04 Mar 2005
TI   Preparation of cyclohexyl prostaglandin analogs as EP4-receptor agonists
IN   Old, David W.; Burk, Robert M.; Dinh, Thang D.
PA   Allergan, Inc., USA
SO   U.S. Pat. Appl. Publ., 20 pp.
     CODEN: USXXCO
DT   Patent
LA   English
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IC ICM A61K031-66
ICS A61K031-41; A61K031-18; A61K031-16; A61K031-045
NCL 514129000; 514381000; 514559000; 514601000; 514613000; 514729000
CC 26-3 (Biomolecules and Their Synthetic Analogs)
Section cross-reference(s): 1, 7, 63
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 2005049227 | A1 | 20050303 | US 2003-652634 | 20030828 <-- |
| WO 2005023267 | A1 | 20050317 | WO 2004-US26607 | 20040816 <-- |

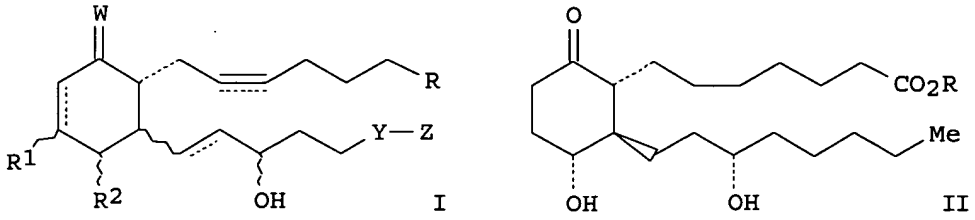
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2003-652634 A 20030828 <--

CLASS

| PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES |
|---|---|---|
| US 2005049227 | ICM | A61K031-66 |
| | ICS | A61K031-41; A61K031-18; A61K031-16; A61K031-045 |
| | NCL | 514129000; 514381000; 514559000; 514601000; 514613000; 514729000 |

GI




AB Cyclohexyl prostaglandin analogs, such as I [wavy segment = α or β bond; dashed bond = presence or absence of a bond; R = CO2R4, CONR42, CH2OR4, CONR4SO2R4, P(O)(OR4), tetrazolyl; R4 = H, Ph, alkyl; R1, R2 = H, OH, alkoxy, acyloxy; W = O, halogen; Y = bond, CH2, O, S, NH; Z = alkyl, cycloalkyl, heterocyclyl], and pharmaceutically acceptable salt and esters thereof, are prepared as EP4 agonists, in general, and, in particular as ocular hypotensives. Ophthalmic formulations containing I are also described. Thus, II (R = Me), prepared via a multistep reaction sequence starting from [(S)-1-((E)-2-iodo-vinyl)-hexyloxy]-tert-butyldimethylsilane, lithium 2-thienylcyanocuprate, (4R)-4-(tert-butyldimethylsilyloxy)-2-cyclohexen-1-one and Me 7-iodohept-5-ynoate, was deacylated with rabbit liver esterase to afford cyclohexyl prostaglandin analog II [R = H (III)]. III had EC50 of 387 nM against hEP4.

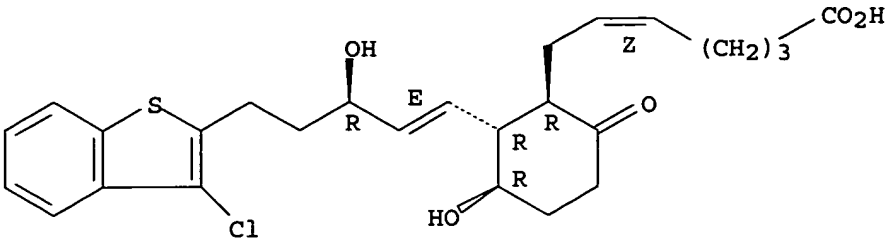
ST prostaglandin cyclohexyl analog prepn EP4 receptor agonist; cyclohexyl analog prostaglandin prepn ocular hypotensive glaucoma treatment

IT Deacylation
(enzymic; preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)

IT Asymmetric synthesis and induction
(of cyclohexyl prostaglandin analogs as ocular hypotensives)

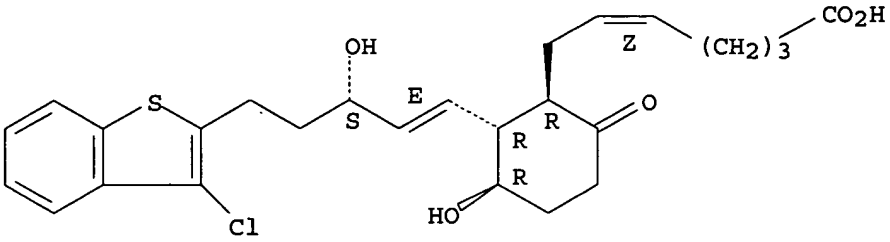
IT Antiglaucoma agents
Human
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT Prostaglandins
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT Prostanoid receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type EP4; preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT **845791-33-5P** 845791-42-6P 845791-45-9P 845791-49-3P
**845791-52-8P 845791-55-1P 845791-56-2P**
**845791-57-3P 845791-58-4P** 845791-59-5P
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT 9016-18-6, Esterase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT 845791-38-0P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT 124-63-0, Methanesulfonyl chloride 1112-67-0, Tetrabutylammonium chloride 31776-12-2 41138-67-4, [(S)-1-((E)-2-Iodo-vinyl)-hexyloxy]-tert-butyldimethylsilane 112426-02-5, Lithium 2-thienylcyanocuprate 164577-42-8, (4R)-4-(tert-Butyldimethylsilyloxy)-2-cyclohexen-1-one 736141-49-4 845791-39-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT 315220-61-2P **845791-30-2P 845791-31-3P**
**845791-32-4P** 845791-35-7P 845791-36-8P 845791-37-9P
845791-40-4P 845791-41-5P 845791-43-7P 845791-44-8P 845791-46-0P
845791-47-1P 845791-48-2P **845791-50-6P 845791-51-7P**
845791-53-9P 845791-54-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
IT **845791-33-5P 845791-52-8P 845791-55-1P**
**845791-56-2P 845791-57-3P 845791-58-4P**
RL: BPN (Biosynthetic preparation); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
RN 845791-33-5 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.



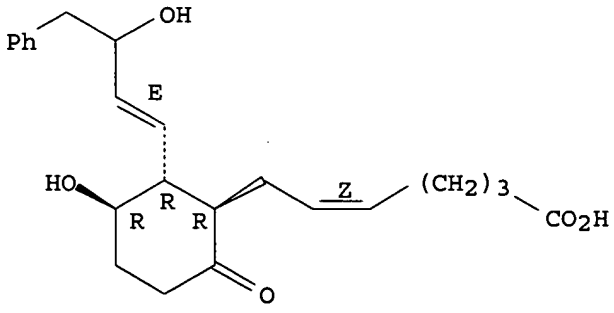
RN 845791-52-8 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.



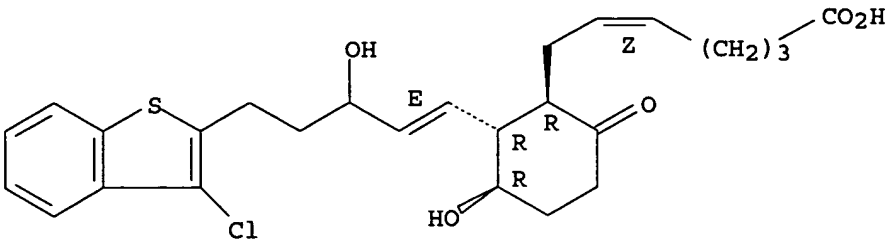
RN 845791-55-1 HCAPLUS
CN 5-Heptenoic acid, 7-[(1R,2R,3R)-3-hydroxy-2-[(1E)-3-hydroxy-4-phenyl-1-butenyl]-6-oxocyclohexyl]-, (5Z)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.



RN 845791-56-2 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.



RN 845791-57-3 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

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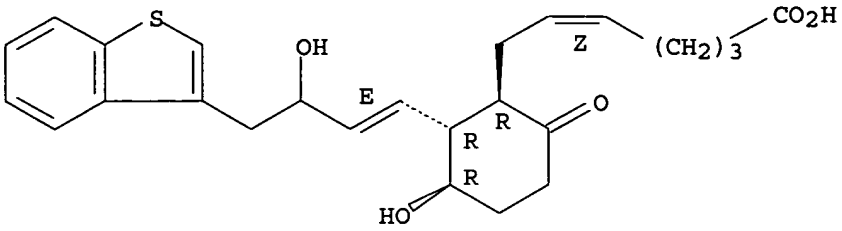

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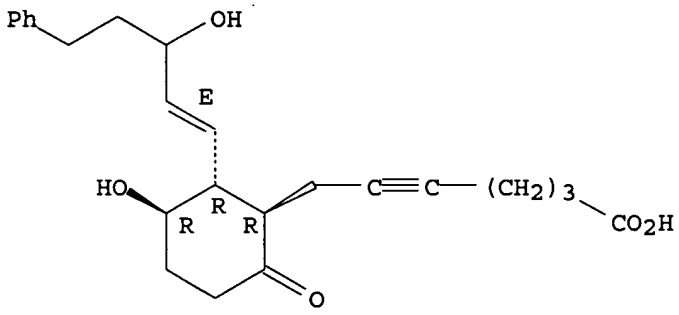
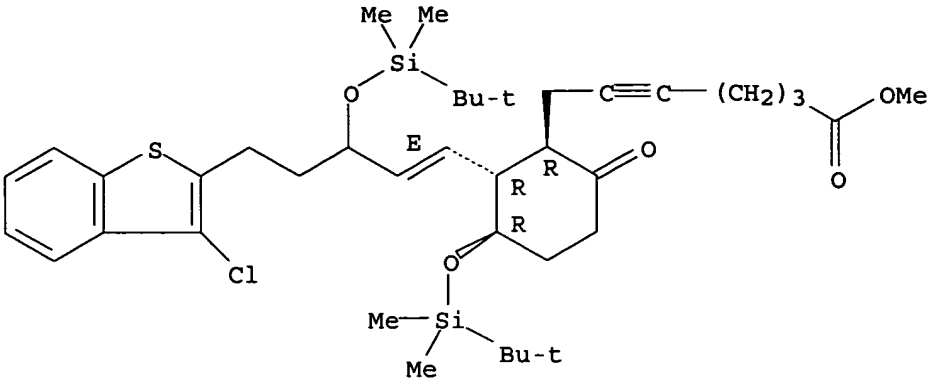
CN 5-Heptynoic acid, 7-[(1R,2R,3R)-3-hydroxy-2-[(1E)-3-hydroxy-5-phenyl-1-pentenyl]-6-oxocyclohexyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.



IT **845791-30-2P 845791-31-3P 845791-32-4P**
**845791-50-6P 845791-51-7P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
RN 845791-30-2 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.



RN 845791-31-3 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

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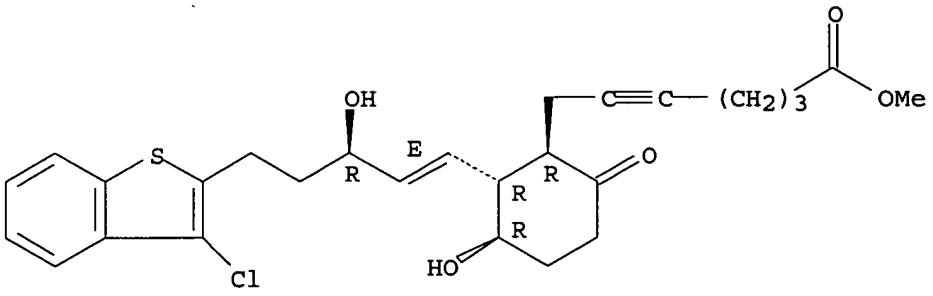

RN 845791-32-4 HCAPLUS
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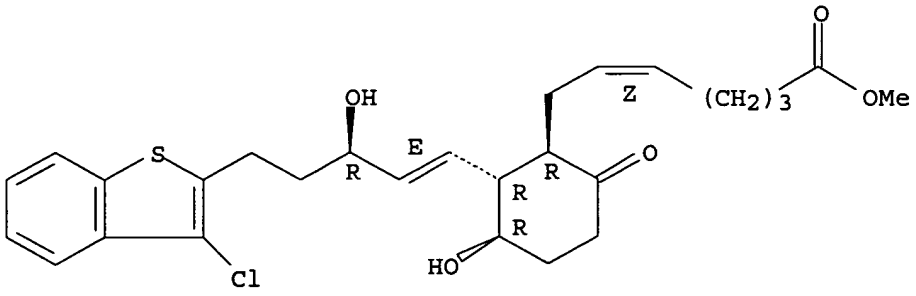

RN 845791-50-6 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
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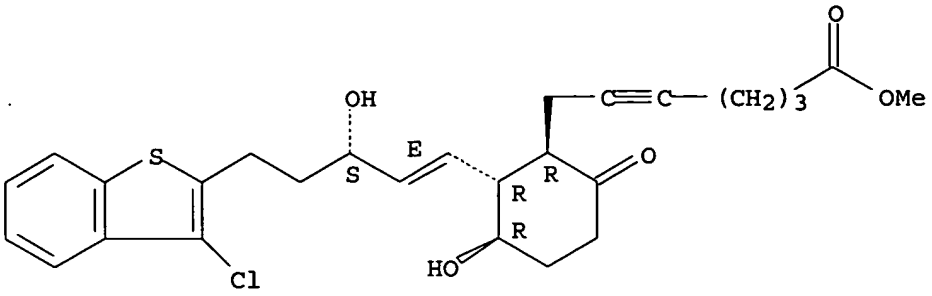

RN 845791-51-7 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED

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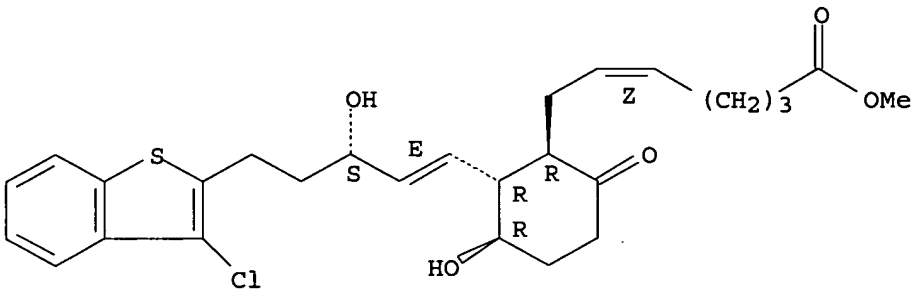

=> fil uspatall
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FILE 'USPAT2' ENTERED AT 08:46:10 ON 04 APR 2005
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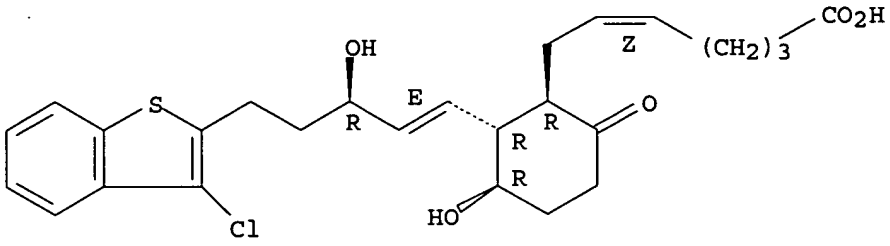
L31 ANSWER 1 OF 1 USPATFULL on STN
AN 2005:57310 USPATFULL
TI Cyclohexyl prostaglandin analogs as EP4-receptor agonists
IN Old, David W., Irvine, CA, UNITED STATES
Burk, Robert M., Laguna Beach, CA, UNITED STATES
Dinh, Thang D., Garden Grove, CA, UNITED STATES
PA Allergan, Inc. (U.S. corporation)
PI US 2005049227 A1 20050303
AI US 2003-652634 A1 20030828 (10)
DT Utility
FS APPLICATION
LREP Robert J. Baran, ALLERGAN, INC., Legal Department, 2525 Dupont Drive, Irvine, CA, 92612
CLMN Number of Claims: 30
ECL Exemplary Claim: 1
DRWN 6 Drawing Page(s)
LN.CNT 904
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to the use of novel cyclohexyl analogues of E-type prostaglandins as EP.sub.4 agonists, in general, and, in particular as ocular hypotensives. The cyclohexyl analogues used in accordance with

the invention are represented by the following formula I: ##STR1##

wherein the wavy segments represent α or β bond, dashed line represents the presence or absence of a bond W, Y, Z, R, R.sup.1, R.sup.2 and R.sup.3 are as defined in the specification.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
IT **845791-33-5P 845791-52-8P 845791-55-1P**
**845791-56-2P 845791-57-3P 845791-58-4P**
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
RN 845791-33-5 USPATFULL
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.




RN 845791-52-8 USPATFULL
CN INDEX NAME NOT YET ASSIGNED

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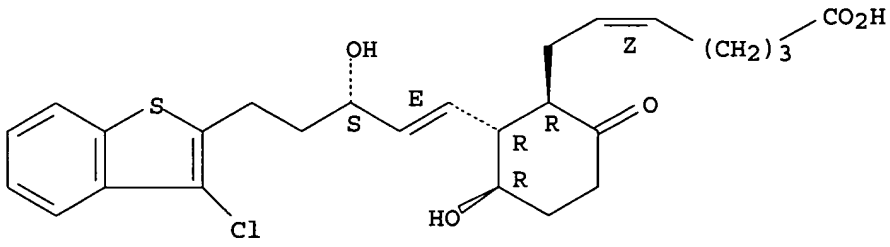
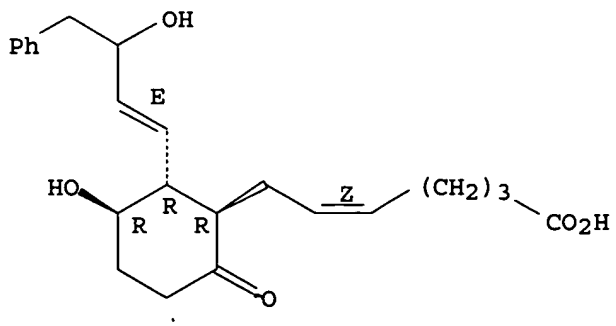



RN 845791-55-1 USPATFULL
CN 5-Heptenoic acid, 7-[(1R,2R,3R)-3-hydroxy-2-[(1E)-3-hydroxy-4-phenyl-1-butenyl]-6-oxocyclohexyl]-, (5Z)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.



RN 845791-56-2 USPATFULL
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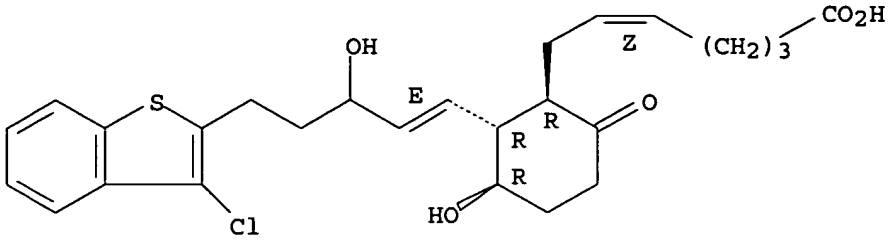
Double bond geometry as shown.

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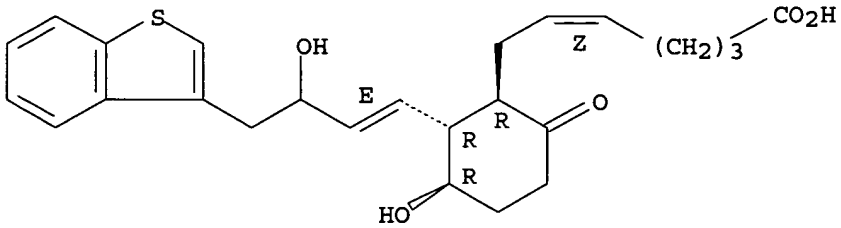
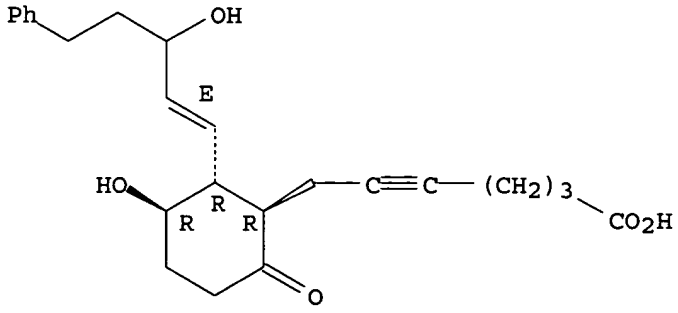


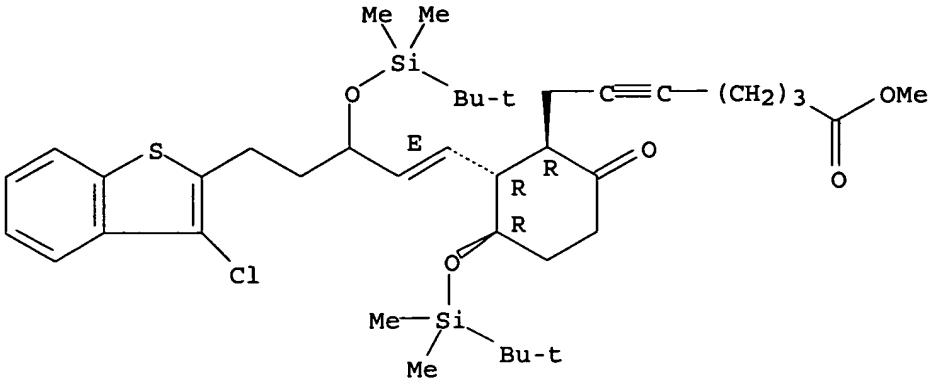

RN 845791-58-4 USPATFULL
CN 5-Heptynoic acid, 7-[(1R,2R,3R)-3-hydroxy-2-[(1E)-3-hydroxy-5-phenyl-1-pentenyl]-6-oxocyclohexyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.



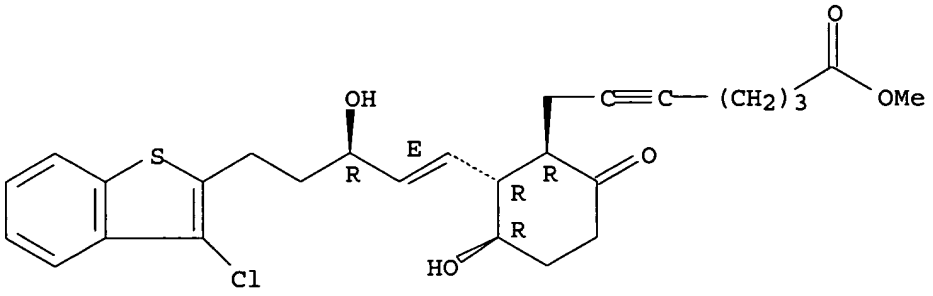

IT **845791-30-2P 845791-31-3P 845791-32-4P**
**845791-50-6P 845791-51-7P**
(preparation of cyclohexyl prostaglandin analogs as ocular hypotensives)
RN 845791-30-2 USPATFULL
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.



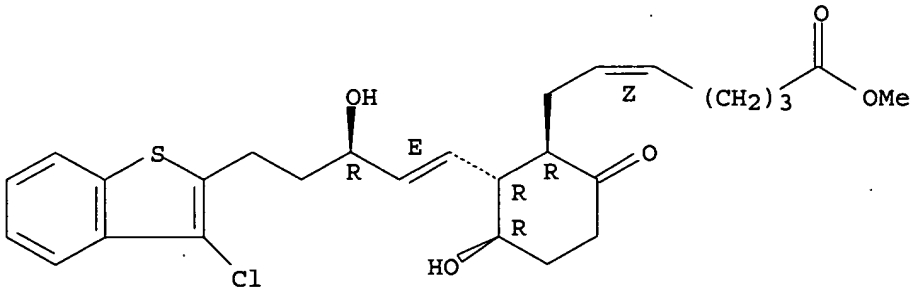

RN 845791-31-3 USPATFULL
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.



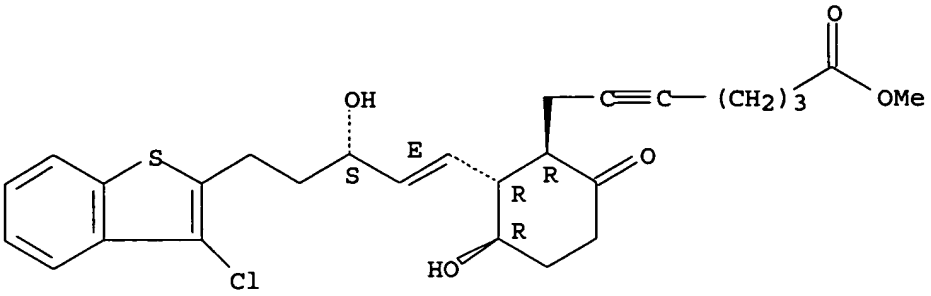

RN 845791-32-4 USPATFULL
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.



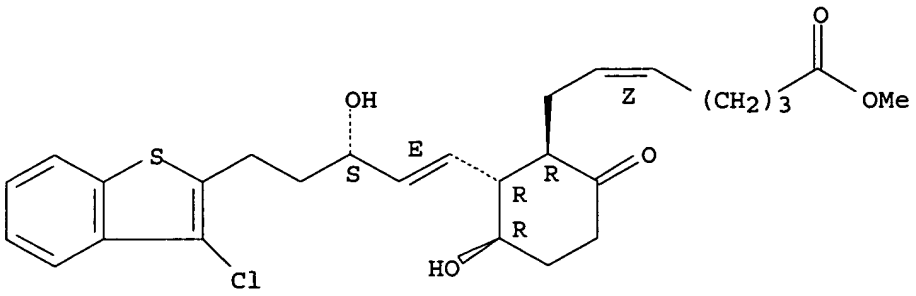

RN 845791-50-6 USPATFULL
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.




RN 845791-51-7 USPATFULL
CN INDEX NAME NOT YET ASSIGNED

Absolute stereochemistry.
Double bond geometry as shown.

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